

In re: Cuomo et al.
Serial No.: 09/826,431
Page 8 of 10

Remarks

Claims 1-20 and 44-54 are pending in the application. Claims 1-20, 44-45, and 47-54 stand rejected under 35 U.S.C. § 112, first paragraph. Claims 1-5, 8-9, 11-14, 44-45, 47-50, and 53-54 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,494,712 to Hu et al. ("Hu"). Claims 1-20, 44-45, and 47-50 stand rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 5,063,081 to Cozzette et al. ("Cozzette"). Claim 46 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hu in view of U.S. Patent No. 5,403,630 to Matsui et al. ("Matsui").

Applicants submit that the above amendments further distinguish the claimed invention from the cited prior art, more particularly claim the invention, and place the claims in better condition for appeal. The above amendments do not necessitate a new search, raise the issue of new matter, or otherwise introduce new issues. Accordingly, entry of the above amendments is hereby requested and allowance of the pending claims is solicited. The arguments from the previous response are incorporated herein by reference.

More specifically, independent Claims 1 and 44-48 have been amended to recite that "at least one biomolecule is adsorbed to the electrophilic functional group." Support for the amendments can be found in Claim 6 as originally filed. Independent Claims 49 and 50 have been amended to recite that "the surface of the coating is non-adsorbing with respect to biomolecules." Support for the amendments can be found in Claim 10 as originally filed.

Reconsideration of the rejection under 35 U.S.C. § 112, first paragraph, set forth on page 2 of the current Final Office Action dated August 7, 2003 ("the Action"), is respectfully requested. In response to Applicant's arguments regarding the breadth of the claims as one of the *Wands* factors, the Action maintains that the claimed coating definition (3) "would include naturally occurring carbon compound such as charcoal." The Examiner then cites an encyclopedia definition that refers to charcoal as amorphous carbon. However, the claims recite that the claimed coating is an "amorphous chemically crosslinked material." In charcoal, carbon atoms bond strongly to each other within one plane but weakly between the adjacent plane. Charcoal is not a chemically crosslinked material.

In re: Cuomo et al.
Serial No.: 09/826,431
Page 9 of 10

With respect to the prior art rejections, Applicants request reconsideration in light of the above amendments and the following arguments.

In particular, on page 14 of the Action, it is maintained that Cozzette discloses a material that is terminated with at least one electrophilic or nucleophilic group for the adsorption or nonadsorption of biomolecules. In support of this characterization of Cozzette, the Action takes the position that Cozzette discusses that a "semipermeable film can function as adhesion promoters for biomolecule (col. 13, lines 54-62)" and discusses that the "permselective properties" proposed in Cozzette exclude certain molecules.

Applicants disagree with the Action's characterization of Cozzette. Adhesion promotion is discussed extensively in Cozzette as adhesion promotion between layers on the surface. See Cozzette, col. 27 line 66 – col. 28., line 2. ("Another aspect of microfabrication which should be considered when depositing multiple layers onto a planar transducer of this type is the lack of 'detailed' rough topography that would promote adhesion between component layers." (emphasis added)). The section of Cozzette cited in the Action states specifically that the "permselective layers may also function as adhesion promoters by which the preselected ligand receptor may be immobilized to the wholly microfabricated LLR-based biosensor embodiment of the present invention." (col. 13, line 68 – col. 14. line 4.). As set forth in the previous response, Cozzette discusses specific binding rather than adsorption or non-adsorption. Moreover, Applicants submit that permselective properties are very different in structure and purpose compared with adsorption or non-adsorption. Permeability refers to the ability of a membrane to selectively allow a substance to pass through or to penetrate the membrane.

In contrast, independent Claims 1 and 44-50 as amended recite electrophilic and/or nucleophilic functional groups "wherein at least one biomolecule is adsorbed to the electrophilic functional group" (Claims 1 and 44-48) or "wherein the surface of the coating is non-adsorbing with respect to biomolecules," (Claims 49 and 50) Adsorption is defined by McCraw-Hill's Dictionary of Scientific and Technical Terms, 3rd Ed. (1984) as "the surface retention of solid, liquid, or gas molecules, atoms, or ions by a solid or liquid, as opposed to absorption, the penetration of substances into the bulk of the solid or liquid." Thus, Applicants submit that Cozzette does not teach or suggest an electrophilic or nucleophilic functional group and a

In re: Cuomo et al.
Serial No.: 09/826,431
Page 10 of 10

biomolecule adsorbed to the electrophilic functional group or a non-adsorbing surface.

With respect to the rejections based on Hu, Applicants request reconsideration in light of the above amendments. As set forth in the previous response, Hu proposes a method of coating a substrate to produce abrasion resistant surfaces and is not concerned with adsorption or non-adsorption of biomolecules.

In light of the above amendments and remarks, Applicants respectfully submit that the application is in condition for allowance and respectfully requests same. The Examiner is requested to contact the undersigned to resolve any remaining issues.

Respectfully submitted,



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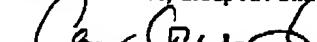
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OCT 08 2003

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Carey Gregory
Date of Signature: October 7, 2003